

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							February 2002			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM						
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		62955	99505	57825	7701	6410	10085	11367	0	345725
090	MLRS HIMARS	46189	50703	24510	2993	1984	0	0	0	166510
093	MLRS JOINT TECH ARCHITECTURE	0	1527	6723	4600	2100	1090	0	0	21287
784	GUIDED MLRS	16766	47275	26592	108	2326	8995	11367	0	157928
<p><u>A. Mission Description and Budget Item Justification:</u>The Multiple Launch Rocket System (MLRS) upgrade (M270A1 and Guided MLRS (GMLRS)) is an Legacy to Objective force missile system that provides precision strike and is essential due to the expansion of regional power threats. This Product Improvement Program (PIP) provides for the maturation of a High Mobility Artillery Rocket System (HIMARS), the Joint Technical Architecture-Army (JTA-A), and the System Development and Demonstration (SDD) of a Guided MLRS (GMLRS) Rocket. The HIMARS will replace M198 towed howitzer and M270 Launchers and allow MLRS capability to be C-130 transportable, mounting one rocket or missile pod on a 5-ton truck. It gives early entry forces immediate fire support within a hot landing zone without waiting for heavy-lift aircraft. The JTA-A will implement the capability for situational awareness in M270A1 and HIMARS launchers and trainers. A multinational GMLRS program will greatly enhance the capability of the existing MLRS, providing greater range, significantly enhanced accuracy, and interoperability among the nations covered under the MLRS Memorandum of Understanding (MOU). The improvement in accuracy and range will reduce the number of rockets required to defeat targets, thus dramatically reducing the logistics burden and increasing crew survivability. These systems support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).</p>										

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2002**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**B. Program Change Summary**

	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002/03 PB)	68886	111389	21324
Appropriated Value	69523	100389	
Adjustments to Appropriated Value			
a. Congressional General Reductions		-884	
b. SBIR / STTR	-521		
c. Omnibus or Other Above Threshold Reductions	-1719		
d. Below Threshold Reprogramming	-3524		
e. Rescissions	-687		
Adjustments to Budget Years Since FY2002 PB	-117		36501
Current Budget Submit (FY 2003 PB)	62955	99505	57825

FY 02 Congressional reduction (-\$11.0 million).

FY 03 funding increase to meet increased development and testing requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2002					
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM			PROJECT 090					
COST (In Thousands)				FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
090 MLRS HIMARS				46189	50703	24510	2993	1984	0	0	0	166510
<p><u>A. Mission Description and Budget Item Justification:</u> The High Mobility Artillery Rocket System (HIMARS) fully supports the Army Transformation to a more deployable, affordable, and lethal force. It provides MLRS capability through a lighter weight, more deployable system in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle, HIMARS is transportable on a C-130 aircraft, is self-locating and self-loading . It provides full MLRS and Army TACMS (ATACMS) Family of Munitions capability yet requires significantly reduced airlift resources to transport a battery as opposed to a MLRS tracked battery. HIMARS is the Light Force and Objective Force choice for high volume General Support and Reinforcing fire against time-sensitive, high-payoff targets.</p> <p>HIMARS meets Army's modernization goals for the 21st century, is designated the Army's "Legacy to Objective" Rocket/Missile delivery system, and was selected by Army strategic planners as one of the Army's seven "core" transformation systems.</p> <p><u>FY 2001 Accomplishments:</u></p> <ul style="list-style-type: none"> • 44395 Conducted System Design, Test and Integration, and Cost Reduction Initiatives • 296 Obtained Government Furnished Equipment (GFE), Communications and Trucks; performed technical assessments and prepared documentation • 1498 Conducted Development Testing (3 Test Articles) <p>Total 46189</p> <p><u>FY 2002 Planned Program</u></p> <ul style="list-style-type: none"> • 39602 Assemble hardware, conduct Contractor Development Test (CDT) and Critical Design Review (CDR) • 11101 Conduct Extended System Integration Test (ESIT), Automotive Flight Test Series 1 & 2 and Ground Test, Resupply Vehicle and Resupply Trailer Integration Test (3 Test Articles); Perform Technical Assessments and milestone documentation <p>Total 50703</p>												

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February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT
PROGRAM

PROJECT
090

FY 2003 Planned Program

- 9920 Continue System Design, conduct Functional Configuration Audit (FCA), and develop Integrated Logistics Products (ILP); Integrate and test Horizontal Technology Insertion (HTI) elements for Guided MLRS firing
- 14590 Finalize Resupply Vehicle and Resupply Trailer for FCA and Development Testing, 2nd ESIT and Operational Test (OT), and perform technical assessments and milestone documentation

Total 24510

B. Other Program Funding Summary

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Missile Procurement, Army	0	0	0	0	0	0	0	0	0
HIMARS Launcher (C03000)	0	0	128402	115554	162174	177057	224280	2098959	2906426
HIMARS Modifications (C67501)	0	0	0	476	485	4699	8657	124365	138682
HIMARS Modifications: Initial Spares (CA0289)	0	0	0	71	72	706	1298	19460	21607
Initial Spares, HIMARS (CA0288)	0	0	0	7659	3633	7672	7828	41300	68092

C. Acquisition Strategy: The First Unit Equipped (FUE) is planned for FY05. The contracting strategy will be sole source.

D. Schedule Profile

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Design IPR 1	1Q						
Development Testing Begins	2Q						
Functional Qualification Test (FQT), Launchers 1-3 Delivered		1Q					
Design IPR 2		1Q					
Functional Configuration Audit (FCA)		2Q					
Launchers 4-6 delivered		3-4Q					
LLI IPR, Milestone C			1-2Q				
Limited User Test				2-3Q			

ARMY RDT&E COST ANALYSIS(R-3)									February 2002			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 090		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFCS, TX	26804	38868		30618	1-3Q	9470	1-3Q	0	105760	0
b . Cab Improv./ OGA	N/A	TACOM (S&S)	3961	300		400	1-3Q	240	1-3Q	0	4901	0
c . GFE,Comm,Trks & Trls	N/A	TACOM & CECOM	2105	35		1460	1-3Q	250	1-3Q	0	3850	0
d . Government Support	N/A	MRDEC, IMMC, RSA, GSA	3216	2835		4203	1-3Q	929	1-3Q	0	11183	0
Subtotal:			36086	42038		36681		10889		0	125694	0
Remarks: MRDEC - Msl Res, Dev & Eng Ctr, IMMC - Integ Matl Mgmt Ctr RSA - Redstone Arsenal, AL, S&S - Stewart & Stevenson GSA - General Services Administration LMMFCS - Lockheed Martin Missile and Fire Control System												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C & CPFF	Camber Research, AL	377	261	2Q	300	2Q	100	2Q	0	1038	0
Subtotal:			377	261		300		100		0	1038	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2002			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 090		
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	APG MD,WSMR NM & RTTC RSA	2007	2139	1-3Q	11318	1-3Q	13432	1-3Q	4977	33873	0
Subtotal:			2007	2139		11318		13432		4977	33873	0
Remarks: APG MD - Aberdeen Proving Ground, Maryland WSMR NM - White Sands Missile Range, New Mexico RTTC RSA - Redstone Technical Test Center, Redstone Arsenal, AL												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc , RSA	1661	1751	1-4Q	2404	1-4Q	89	1-4Q	0	5905	0
Subtotal:			1661	1751		2404		89		0	5905	0
Project Total Cost:			40131	46189		50703		24510		4977	166510	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2002		
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 093	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
093 MLRS JOINT TECH ARCHITECTURE	0	1527	6723	4600	2100	1090	0	0	21287
<p><u>A. Mission Description and Budget Item Justification:</u>The JTA-A completes final development of the Joint Variable Message Format necessary to meet the Department of Defense Message Standardization requirement. It also develops and integrates situational awareness capability for both the M270A1 and HIMARS. This development meets the requirement for a digitized M270A1 for the Counterattack Corps by FY04 and a digitized HIMARS for the Interim Division by FY06. The MLRS Launchers are critical to U.S. Forces Korea and the Army Counterattack Corps as well as supporting Army Transformation. Additionally, the JTA-A provides for the development and integration of Selective Availability/Anti-Spoofing Module (SAASM) for the M270A1 and HIMARS. This development makes the M270A1 and HIMARS compliant with the Joint Staff guidance to have weapon systems SAASM compliant by FY07.</p> <p>This effort is required to meet required JTA-A compliance requirements and enable firing of GMLRS and future ATACMS variants.</p> <p><u>FY 2001 Accomplishments:</u> Project not funded in FY 2001</p> <p><u>FY 2002 Planned Program</u></p> <ul style="list-style-type: none"> 1527 Perform Force XXI Battle Command Brigade and Below (FBCB2) applique integration and development testing. Develop, integrate, and test SASSM and Joint Variable Message Format. Develop platform situational awareness requirements. <p>Total 1527</p>									

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<p><u>FY 2003 Planned Program</u></p> <ul style="list-style-type: none"> • 4488 Design and implement common card interface • 2235 Perform development testing <p>Total 6723</p>																																																																					
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<u>B. Other Program Funding Summary</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>																																																												
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<p><u>C. Acquisition Strategy:</u> The Joint Technical Architecture-Army (JTA-A) standards will be implemented for the M270A1 launcher to provide Force XXI capabilities for the First Digitized Corps.</p>																																																																					
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ARMY RDT&E COST ANALYSIS(R-3)									February 2002			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 093		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract (SAASM Support)	CPAF	LMMFCS, Dallas, TX	3541	0		0	1-3Q	2639	1-3Q	0	6180	0
b . Government Support	N/A	MRDEC,SED,RSA	982	0		1167	1-3Q	0		0	2149	0
Subtotal:			4523	0		1167		2639		0	8329	0
Remarks: LMMFCS - Lockheed Martin Missile and Fire Control System MRDEC - Missile Research, Development and Engineering Center SED, RSA - Software Engineering Directorate, Redstone Arsenal												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

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BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 093					
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract			
a . Test Support	N/A	CTSF, Ft. Hood, TX	492	0		0		2234	1-3Q	0	2726	0			
Subtotal:			492	0		0		2234		0	2726	0			
Remarks: CTSF - Central Test Support Facility															
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract			
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	690	0		360	1-4Q	1850	1-4Q	0	2900	0			
Subtotal:			690	0		360		1850		0	2900	0			
Remarks: PFRMS - Precision Fires Rocket and Missile Systems															
Project Total Cost:						5705	0		1527		6723		0	13955	0

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COST (In Thousands)				FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
784	GUIDED MLRS			16766	47275	26592	108	2326	8995	11367	0	157928
<p><u>A. Mission Description and Budget Item Justification:</u>The Guided Multiple Launch Rocket System (GMLRS) is a precision strike, artillery rocket system. Coupled with the High Mobility Artillery Rocket System (HIMARS) launcher platform, the GMLRS provides the warfighter with a highly mobile, rapidly deployable, precision guided munition with a reduced logistics burden effective against counterfire, air defense, light materiel, and personnel targets. The GMLRS is a major upgrade to the M26 series rocket and replaces the aging M26 inventory. GMLRS will integrate a guidance and control package and a new rocket motor to achieve greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets. Since fewer rockets will be required to defeat a target, the logistics burden will be reduced. The GMLRS will also become the primary munition for the artillery units fielded with the M270A1 launcher. The GMLRS is a five nation cooperative program that consists of France, Germany, Italy, U.K. and The United States. FY05 initiates efforts to meet DOD mandate on Insensitive Munitions effort. The GMLRS supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).</p> <p>Guided MLRS is the baseline for future Artillery Precision Rocket Munitions and is critical to the Army's Objective Force. It meets Army Transformation Objectives and supports Joint Vision 2020 Tenant of Precision Engagement.</p> <p><u>FY 2001 Accomplishments:</u></p> <ul style="list-style-type: none">15253 Performed Engineering Design Tests (EDT), Ground and Flight Tests, Hardware Assembly, and conducted Test Results Analysis302 Performed Technical Assessments/Evaluations and Simulation Support1211 Performed Development Testing (8 Test Articles) <p>Total 16766</p>												

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<u>FY 2002 Planned Program</u>		
• 26675	Conduct Development Engineering, EDT Flight Tests, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis (30 Test Articles)	
• 3502	Perform Integration and Test of Alternative Self Destruct Fuze and Improved Mechanical Fuze	
• 1798	Develop Advanced Field Artillery Tactical Data System (AFATDS) Interface	
• 5570	Obtain assets for System Integration and Cold Region Test (18 test articles)	
• 7729	Conduct system test and evaluation activities	
• 2001	Perform technical assessments, concept studies, and prepare milestone documentation	
Total 47275		
<u>FY 2003 Planned Program</u>		
• 15949	Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test	
• 750	Prepare Technical Assessments and Milestone Documentation	
• 2750	Perform Integration and test of Alternative Self Destruct Fuze	
• 2000	Continue AFATDS Interface Development	
• 5143	Obtain rockets for Operational Test (30 test articles)	
Total 26592		

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February 2002

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7 - Operational system development

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0603778A - MLRS PRODUCT IMPROVEMENT
PROGRAM

PROJECT
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B. Other Program Funding Summary

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Missile Procurement Army - ER-MLRS (C65402)	5727	0	0	0	0	0	0	0	119296
Missile Procurement Army - GMLRS (C65404)	0	0	29698	85001	100873	90394	77995	8109100	8493061

C. Acquisition Strategy: The GMLRS acquisition strategy is a streamlined product improvement program which permits entrance into Low Rate Initial Production (LRIP) and subsequent Full-Scale Production after completion of the System Development Demonstration (SDD) program. The primary objective of the SDD phase is to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. This effort will incorporate the results of other development efforts for an alternative self destruct fuze and an improved mechanical fuze as well as increase the range for a new rocket motor. The acquisition alternative most advantageous to the government is a sole source SDD contract with the system prime contractor, Lockheed Martin Missile & Fire Control Systems (LMMFCS), and maximum competition of non-developmental item (NDI) components at the vendor level.

D. Schedule Profile

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
EDT Ground Tests, Ballistic flights 1&2, Motor Qual tests, Final SW Integration Test, HWIL Tests	1-4Q	1-2Q					
EDT Rocket intergration and test, EDT Flight Tests 1&2, Motor Qual Complete		1Q					
EDT and PQT Rocket Integration , EDT Flight Tests 3-6, ROFS Software FQT		2-3Q					
Functional Configuration Audit (FCA)			1Q				
Facilitization IPR, Final PDDP, MS C			1-3Q				
LRIP Contract Award			3Q				
HIMARS/GMLRS DT Flight Test, Cold Region Test				1-2Q			
1st LRIP Rocket Delivery, Production Verification Test (PVT)					1-2Q		
Initial Operational Test (IOT), Ground and Flight Test					3-4Q		
Full Rate Production Decision, FRP Contract, Initial Operational Capability (IOC)						2-4Q	

ARMY RDT&E COST ANALYSIS(R-3)									February 2002			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 784		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract	SS & CPAF	LMMFCS Dallas, TX	47729	10138	1-3Q	28428	1-3Q	17960	1-3Q	11438	115693	0
b . Government Support	N/A	MRDEC, IMMC, RSA, GSA	5802	3545	1-3Q	6760	1-3Q	2000	1-3Q	3250	21357	0
Subtotal:			53531	13683		35188		19960		14688	137050	0
Remarks: LMMFCS - Lockheed Martin Missile and Fire Control System MRDEC - Missile Research,Development and Engineering Center IMMC, RSA - Integrated Materiel Management Center, Redstone Arsenal GSA - General Services Administration												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C & CPFF	Camber Research, AL	802	300	2Q	450	2Q	750	2Q	1300	3602	0
b . P3I Concept Studies	C & TDB	TBD	0	0		1500	3Q	0		0	1500	0
Subtotal:			802	300		1950		750		1300	5102	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2002			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 784		
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	WSMR, NM & Meppen,GE	979	1295	1-3Q	7730	1-3Q	4470	1Q	4750	19224	0
Subtotal:			979	1295		7730		4470		4750	19224	0
Remarks: WSMR, NM - White Sands Missile Range, New Mexico												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	2827	1488	1-4Q	2407	1-4Q	1412	1-4Q	2058	10192	0
Subtotal:			2827	1488		2407		1412		2058	10192	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems												
Project Total Cost:			58139	16766		47275		26592		22796	171568	0